REMARKS

Claims 1-10 and 18 have been cancelled. Claim 17 has been amended to generally include the content of cancelled claim 18. Claim 19 has been amended to correct formalities. New Claims 24-29 have been added. Claims 11-17 and 19-29 are pending. Reconsideration and withdrawal of the rejections are requested in view of the following remarks.

Claims 1-10 have been cancelled, with the content of claims 1-7 rewritten as new claims 24-29. New claim 24 includes an ozone supply system, as do the other independent claims 11 and 17. New Claims 25-29 are the same as cancelled Claims 3-7. New claim 24 also includes the rotatable workpiece holder shown as element number 8 in the drawings, an aqueous liquid supply system, and an organic solvent drying system.

The claimed invention provides for processing or cleaning, rinsing, and drying of workpieces or wafers within a single vessel. Since these multiple manufacturing steps can all be performed in a single vessel, handling of the wafers in reduced. Risks of contamination or breakage are correspondingly reduced. In addition, processing time requirements can also be reduced, since the time required for loading and unloading wafers between process steps is reduced or eliminated.

Since claim 1 has been cancelled and new claim 24 includes all of the content of claim 2, Applicant submits that the rejections at paragraph 2 of the Office Action have been obviated.

Turning to the rejections at paragraph 4 of the Office Action, Oya *et al.*, USP 6,517,999 B1 describes a photoresist removing system using ozone. However, in

contrast to claim 24, the wafers are fixed in place and do not rotate, and no form of drying system in suggested. Kashkoush *et al.*, USP 6,532,974 B2 describes a mist process using ozone. Drying is performed using hot nitrogen gas. There is no organic solvent drying, and as shown in Fig. 3 therein, there is no suggestion of rotating the wafers, as claimed. Yoneda, USP 5,896,875 describes wafer cleaning using ozone. Drying is carried out using alcohol, which is an organic solvent. However, again, the wafers are necessarily fixed in place and cannot rotate within the vessel. Scovell, USP 6,558,477 B1 describes an apparatus for removing photoresist using ozone, and where the wafers rotate within the vessel, while partially submerged in a solvent. There is no drying system. The solvent is used during the active cleaning steps and has nothing to do with drying. Indeed, since Scovell does not use an aqueous cleaning liquid, as claimed, there can no suggestion of a solvent drying system, as there is no aqueous liquid to dry or remove. Claims 24-29 are accordingly allowable.

Turning to the § 102 rejections at paragraph 6 of the Office Action, Kashkoush *et al.* does not teach several of the claimed limitations. With respect to claim 11, Kashkoush *et al.* does not disclose an ozone injection system for introducing ozone gas into a process vessel by bubbling the ozone gas up through a liquid in the process vessel, as claimed. Rather, Kashkoush *et al.* teaches introducing ozone gas into a process vessel 31 above the surface of a process liquid.

In the Kashkoush *et al.* system, wafers 40 are held on a wafer carrier 41 above the surface of the process liquid so that they are not immersed at all in the process liquid (col. 6, lines 59-61; Fig. 1). A megasonic transducer 49, which is submerged in the process liquid, delivers acoustical energy through the process liquid to agitate the

liquid and to form a mist above the surface of the process liquid (col. 7, lines 4-15). The ozone gas diffuses into the mist of process liquid and reacts on the wafers 40 to strip photoresist from the wafers 40. The ozone gas, however, is not bubbled through the process liquid, as recited in claim 11. Rather, the ozone gas is only supplied into the process vessel above the surface of the process liquid so that it can diffuse into the mist formed above the surface of the process liquid.

Kashkoush *et al.* also teaches that the megasonic transducer 49 must be covered with a sufficient volume of deionized water to ensure that that the megasonic transducer 49 can be operated without being permanently damaged as a result of an acoustic mismatch with the ozone gas above the process liquid (col. 6, lines 50-55). Thus, if ozone gas were bubbled through the process liquid, the megasonic transducer 49 would not function properly, and it could be damaged due to the potential acoustic mismatch with the ozone gas. Accordingly, Kashkoush *et al.* teaches away from using an ozone injection system that bubbles ozone gas through a process liquid, and it is therefore improper to combine the teachings of Kashkoush *et al.* with those of a reference that teaches ozone bubbling. Claim 11 is therefore allowable.

Claim 17 has been amended to include the step of "heating the processing fluid with a heater." Such a step is not taught or suggested by Kashkoush *et al.* Rather, Kashkoush *et al.* explicitly teaches away from heating, and uses megasonic agitation instead of heating (col. 7, lines 25-32). Thus, Kashkoush *et al.* cannot properly be combined with a reference that teaches the use of a heater to heat a processing liquid.

Additionally, Yoneda, which is the only reference cited for teaching the use of a heater, does not teach that the heater is used to heat a processing fluid located

beneath a workpiece, as recited in claim 17. Rather, Yoneda simply teaches using heaters 3 to heat the closed air space 2 within a process chamber 1, and to prevent the inside of the process chamber 1 from being dried and from forming dew (col. 7, lines 22-26).

Furthermore, Yoneda simply teaches a wafer-spraying process in which processing fluid is not held in the process chamber 1 beneath the workpiece. Thus, the process described in Yoneda is substantially unrelated to the claimed method. There is no motivation or suggestion in Yoneda to use heaters to heat a processing fluid located beneath a workpiece, as recited in claim 17. Indeed, Yoneda does not teach or suggest heating a processing fluid in any manner. Accordingly, there is no suggestion to combine the teachings of Kashkoush *et al.*, which explicitly teaches away from heating, with Yoneda, which doesn't teach heating a process fluid, to yield the method of claim 17. Thus, claim 17 is believed to be allowable.

In view of the foregoing, it is submitted that all of the claims are in condition for allowance, and a Notice of Allowance is requested.

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Respectfully submitted,

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